

CLAIM AMENDMENTS

Claim Amendment Summary

Claims pending

- Before this Amendment: Claims 1-38.
- After this Amendment: Claims 1-10 and 12-38

Non-Elected, Canceled, or Withdrawn claims: 11

Amended claims: 1, 20, 25, 26, and 31

New claims: none

Claims:

- 1. (Currently Amended)** A method comprising:
- receiving a request to play compressed video data in a reverse direction;
- identifying a most recent key frame received;
- decoding the most recent key frame;
- identifying delta frames received after the most recent key frame;
- decoding the identified delta frames;
- deleting alternating rows of pixels in each decoded delta frame; and
- deleting alternating pixels in non-deleted rows of pixels in each decoded delta
- frame; and
- playing the remaining decoded delta frames in the reverse direction.

2. (Original) A method as recited in claim 1 further comprising playing the decoded key frame after playing the decoded delta frames in the reverse direction.

3. (Original) A method as recited in claim 1 further comprising:
playing the decoded key frame after playing the decoded delta frames in the reverse direction;

identifying a next most recent key frame;

decoding the next most recent key frame;

identifying a second set of delta frames received after the next most recent key frame and before the most recent key frame;

decoding the second set of delta frames; and

playing the second set of decoded delta frames in the reverse direction.

4. (Original) A method as recited in claim 1 wherein decoding the identified delta frames includes decoding the identified delta frames in a forward playback direction.

5. (Original) A method as recited in claim 1 wherein decoding the identified delta frames includes utilizing data contained in the most recent key frame.

6. (Original) A method as recited in claim 1 wherein decoding the most recent key frame includes decompressing the most recent key frame.

7. (Original) A method as recited in claim 1 wherein decoding the identified delta frames includes storing 1 of N identified delta frames and discarding the remaining identified delta frames.

8. (Original) A method as recited in claim 7 wherein N is an integer portion of a result of applying a square root function to the number of delta frames associated with each key frame.

9. (Original) A method as recited in claim 1 further comprising deleting alternating delta frames after decoding the identified delta frames.

10. (Original) A method as recited in claim 1 further comprising deleting N of every P frames after decoding the identified delta frames, wherein N and P are integers.

11. (Canceled)

12. (Original) A method as recited in claim 1 further comprising:
reducing an amount of data associated with each pixel in each decoded delta frame; and

storing the reduced amount of data associated with each decoded delta frame.

13. (Original) A method as recited in claim 1 further comprising:
applying a lossless compression algorithm to each decoded delta frame; and
storing each of the compressed delta frames.

14. (Original) A method as recited in claim 1 further comprising:
identifying at least one compressed audio packet associated with the compressed
video data;
decoding the compressed audio packet; and
playing the decoded audio packet in reverse order.

15. (Original) A method as recited in claim 1 wherein decoding the most
recent key frame includes partially decoding the most recent key frame to an intermediate
format.

16. (Original) A method as recited in claim 15 wherein the intermediate
format is used in decoding the identified delta frames.

17. (Original) A method as recited in claim 1 wherein decoding the
identified delta frames includes partially decoding at least one of the identified delta
frames to an intermediate format.

18. (Original) A method as recited in claim 17 wherein the intermediate
format is used in decoding subsequent delta frames.

19. (Original) One or more computer-readable memories containing a computer program that is executable by a processor to perform the method recited in claim 1.

20. (Currently Amended) A method comprising:
receiving a request to play compressed video multimedia data in a reverse direction;

identifying compressed video data in the compressed multimedia data;

identifying compressed audio packets associated with the compressed video data;

identifying a most recent key frame previously received;

identifying a most recent audio key packet previously received;

decoding the most recent key frame;

decoding the most recent audio key packet;

identifying delta frames received subsequent to the most recent key frame;

identifying audio delta packets received subsequent to the most recent audio key packet;

decoding the identified delta frames;

decoding the identified audio delta packets;

reducing an amount of data associated with each pixel in each decoded delta frame
by:

deleting alternating rows of pixels in each decoded delta frame; and

deleting alternating pixels in non-deleted rows of pixels in each decoded delta frame;

storing the reduced amount of data associated with each decoded delta frame;

discarding alternating audio delta packets;

deleting N of P delta frames, wherein N and P are integers and wherein N is determined based on a combination of the amount of memory available for storing decoded video frames and the frame rate desired during reverse playback; and

playing the remaining identified delta frames in the reverse direction and concurrently playing the remaining decoded audio packets in reverse order.

21. (Original) A method as recited in claim 20 further comprising storing the identified delta frames that were not deleted.

22. (Original) A method as recited in claim 20 further comprising playing the decoded key frame after playing the remaining identified delta frames in the reverse direction.

23. (Original) A method as recited in claim 20 wherein decoding the identified delta frames includes utilizing information contained in the most recent key frame.

24. (Original) A method as recited in claim 20 wherein decoding the identified delta frames includes utilizing information contained in the most recent key frame and information contained in any intervening delta frames.

25. (Currently Amended) A method as recited in claim 20 further comprising ~~deleting alternating rows of pixels in each decoded delta frame~~ using a reconstructed video frame as a key frame to begin a decoding process, wherein:

the reconstructed video frame is created from a decoding state of a video decompression component;

the reconstructed video frame is independent from the frame decoded by the video decompression component, such that:

in an event that the frame decoded by the video decompression component was a key frame, the created reconstructed video frame will serve as the key frame;

in an event that the frame decoded by the video decompression component was a delta frame, the created reconstructed video frame will serve as the key frame; and

the reconstructed video frame has a format that is different from a decoded frame which is ready for display.

26. (Currently Amended) A method as recited in claim [[20]] 25 further comprising ~~deleting alternating pixels in each row of pixels in each decoded delta frame~~ storing the decoded video frames in video memory and storing the reconstructed video frames in system memory.

27. (Original) One or more computer-readable memories containing a computer program that is executable by a processor to perform the method recited in claim 20.

28. (Original) An apparatus comprising:

- an audio decoder coupled to receive compressed audio data and decode the compressed audio data;
- an audio data store coupled to the audio decoder;
- a video decoder coupled to receive compressed video data and decode the compressed video data;
- a video data store coupled to the video decoder; and
- a reverse playback controller coupled to the audio decoder and the video decoder, wherein the reverse playback controller generates decoded audio data and decoded video data in a reverse direction.

29. (Original) An apparatus as recited in claim 28 wherein the compressed video data includes at least one key frame and a plurality of delta frames associated with the key frame.

30. (Original) An apparatus as recited in claim 28 wherein the reverse playback controller discards alternating frames of received audio data.

31. (Currently Amended) An apparatus as recited in claim 28 wherein the video decoder deletes alternating frames of received audio video data.

32. (Original) An apparatus as recited in claim 28 wherein the reverse playback controller is further coupled to receive forward playback instructions and reverse playback instructions.

33. (Original) One or more computer-readable media having stored thereon a computer program that, when executed by one or more processors, causes the one or more processors to:

receive a request to play compressed multimedia data in a reverse direction;

identify a most recent video key frame received in the compressed multimedia data;

decode the most recent video key frame;

identify video delta frames received after the most recent video key frame;

decode the identified video delta frames;

identify at least one compressed audio packet in the compressed multimedia data;

decode the compressed audio packet; and

play the decoded video delta frames and the decoded audio packet in the reverse direction.

34. (Original) One or more computer-readable media as recited in claim 33 wherein the audio packet is associated with at least one decoded delta frame.

35. One or more computer-readable media as recited in claim 33 wherein alternating video delta frames are deleted after decoding the alternating video delta frames.

36. (Original) One or more computer-readable media as recited in claim 33 wherein N of P video delta frames are deleted after decoding the video delta frames, wherein N and P are integers.

37. (Original) One or more computer-readable media as recited in claim 33 wherein the one or more processors further:

apply a lossless compression algorithm to each of the decoded video delta frames;
and
store each of the compressed video delta frames.

38. (Original) One or more computer-readable media as recited in claim 33 wherein the one or more processors further store the decoded video delta frames and the decoded audio packet.